

## 29903 - Graphic expression and computer aided design

### Syllabus Information

**Academic Year:** 2019/20

**Subject:** 29903 - Graphic expression and computer aided design

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 435 - Bachelor's Degree in Chemical Engineering

**ECTS:** 6.0

**Year:** 1

**Semester:** 435-First semester o Second semester

107-First semester

**Subject Type:** Basic Education

**Module:** ---

### 1.General information

#### 1.1.Aims of the course

#### 1.2.Context and importance of this course in the degree

#### 1.3.Recommendations to take this course

### 2.Learning goals

#### 2.1.Competences

#### 2.2.Learning goals

#### 2.3.Importance of learning goals

### 3.Assessment (1st and 2nd call)

#### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

### 4.Methodology, learning tasks, syllabus and resources

#### 4.1.Methodological overview

The learning process that is designed for this subject is based on:

The teaching process will be developed in four main levels: theory classes, exercise classes, laboratory and supervised practices, which means an increasing level of student participation. In the lectures, the contents Standardization Industrial Drawing and Descriptive Geometry will be taught illustrated with numerous examples of each topic. In the exercise classes the students will solve exercises, under the supervision of a teacher. The laboratory practices will be developed in small groups, where the student will handle the software for Computer Aided Design. The supervised practices will consist of an individual or a group homework of technical applications that the student will develop with the guidance and supervision of the teacher.

#### 4.2.Learning tasks

Graphic Expression and Computer Aided Design is a subject of 6 ECTS credits, equivalent to 150 total hours of work, corresponding to 60 hours (Theory classes, problems, laboratory of Computer Aided Design...) and 90 non-contact hours (resolution of tutored exercises, study...)

#### 4.3.Syllabus

The main contents are summarized in the following points:

**Standardization and industrial drawing:** Introduction to Graphic for Engineers. Standardization and Computer-Aided

Design. Drawing instruments and drafting machines. Formats, scales, line types and lettering. Orthographic views. Representation of threads. Broken-out sections. Dimensioning.

**Descriptive Geometry:** Techniques of labering points, lines and planes. Intersections. Parallelism. Orthogonality. Auxiliary views. Rotations. The true size of a plane. True-length diagram. Distances.

**Surfaces:** Contour apparent and representation of surfaces. Defining and types of surfaces. Sections and intersections of lines. Transformed and geodesic. Development of surfaces

**Computer-aided design 2D:** Introduction and general operation of the program. Main screen. Comand input. Function keys. File management. Program environment. Drawing aids. Coordinate systems. Display commands. Drawing commands. Selecting entities. Reference entities. Editing commands. Working with layers. Text. Dimensioning. Blocks. Attribute listing.

#### **4.4.Course planning and calendar**

The theory classes, the problem classes and the practice sessions in the laboratory are given according to an established schedule by the center. This schedule is published before the starting date on the center?s web page and the notice boards.

Each professor will inform about his tutorial class schedule.

The rest of the activities will be planned according to the number of students and they will be published with enough time.

#### **4.5.Bibliography and recommended resources**

[http://biblos.unizar.es/br/br\\_citas.php?codigo=29903&year=2019](http://biblos.unizar.es/br/br_citas.php?codigo=29903&year=2019)